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ABSTRACT

Key concepts from theory and research on student learning are discussed, and a conceptual framework to promote the design of local instructional improvement efforts is presented. The objective is to advocate that institutional researchers focus more directly on the basic issues of teaching and learning and to suggest that improving instructional program quality will improve student learning. The framework identifies factors, or intervenors, that affect the type/amount of student learning as well as policies and programs that may affect these intervenors. Six intervenors are covered: student involvement, learning expectations, assessment and feedback, individualization, instructional methods, and content. The intervenors are used as criteria to review the quality of instructional programs. Three types of improvement strategies are considered: student input (e.g., admissions, financial aid), process (resources and curriculum), and outcomes. Examples of quality improvement strategies for each type of strategy are identified. Finally, six implications for institutional research focusing on student learning and local improvement efforts are identified, including: preparation and continuing education needs of practitioners, and a new role and focus for policy analysis. (SW)

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A RETURN TO THE HEART OF THE MATTER: IMPROVING INSTRUCTIONAL PROGRAM QUALITY IN POSTSECONDARY EDUCATION

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for Management Research, Policy Analysis, and Planning

This paper was presented at the Twenty-Sixth Annual Forum of the Association for Institutional Research held at the Marriott Orlando World Center, Orlando, Florida, June 22-25, 1986. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Ann K. Dickey, Chair
Forum Publications Editorial
Advisory Committee

ABSTRACT

Institutional researchers are urged to return to activities which focus more directly on the fundamental issues of teaching and learning, to return to the "heart of the matter". Major purposes of the paper are: 1) to familiarize practitioners with key concepts from theory and research on student learning and to identify some of the important literature available; 2) to provide a conceptual and analytical framework for use with the design of instructional improvement efforts at the local level; and, 3) to identify and discuss some of the implications this shift in focus has for institutional research. Development of the framework was motivated by a desire to promote more comprehensive, multiple and less "quick fix" approaches to the improvement of instructional program quality. The framework identifies six factors, or "intervenors", that appear to have consequences for the kind and amount of student learning taking place and policies and programs, or "improvement strategies", that hold promise for affecting the intervenors.

INTRODUCTION

Factors largely external to education have resulted in renewed national attention on issues of "quality: How effective (or ineffective) are our schools and colleges? and, How can they be improved? One of the more significant of these factors is the growing concern over whether our citizenry will be prepared to deal with future economic, social and technological change. Education is increasingly viewed as the critical vehicle for economic development and international economic positioning.

The K-12 sector has responded with "school improvement" efforts at the school, district and statewide levels. These efforts have been shaped in large part by the research on school effectiveness and place emphasis on fostering conditions designed to increase student learning. Higher education is only beginning to shape its response, one that can be expected to accelerate over the next several years.

Institutional research has historically played an important support role in efforts to improve instructional programs (Dressel, 1980; Saupe, 1981; Norris, 1983). For the past decade, however, our profession has focused heavily on activities related to matters of efficiency, enrollment, retention and planning and the development of computer-based data systems designed to support these and other planning and management activities. Our profession has often seemed fixated on numerical and computerized digits and widgets!

The point here is not to devalue or to suggest the

abandonment of work in these areas but to urge a return by the institutional research community to activities that focus more directly on the fundamental issues of teaching and learning. The call here is for a return to "the heart of the matter"--improving student learning.

The major purposes of this paper are: 1) to familiarize institutional research practitioners with key concepts from theory and research on student learning and to identify some of the important literature available; 2) to provide a conceptual and analytical framework for use with the design of instructional improvement efforts at the local level; and, 3) to identify and discuss some of the implications this shift in focus has for institutional research.

Development of the framework, initially supported by Management Services, Inc. of the National Center for Higher Education Management Systems, was motivated by a desire to promote more comprehensive, multiple and less "quick fix" approaches to the improvement of instructional program quality. Many institutions appear far too ready to grab hold of one particular strategy in an effort to improve "quality" overnight. Popular examples include: raising admission requirements; initiating new marketing programs; adopting new testing practices; and the large-scale purchase of microcomputers.

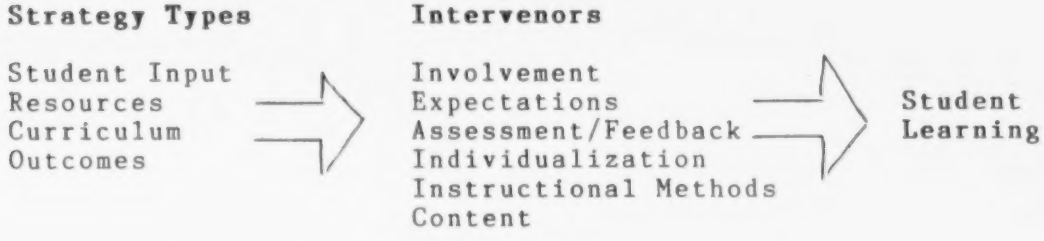
The framework identifies factors, here called "intervenors", that appear to have direct or indirect consequences for the kind and amount of student learning that takes place. Also identified are various policies and programs, labeled

"improvement strategies", which hold promise for affecting these intervenors.

THE CONCEPTUAL AND ANALYTICAL FRAMEWORK

The conceptual framework, shown in Figure 1, suggests the following: 1) improving instructional program quality should be defined as improving student learning; 2) a series of factors--"intervenors"--can be identified which theory, research and experience suggest influence the kind and amount of student learning that takes place; and 3) a set of strategies, policy and programmatic, can be identified which hold varying degrees of promise for affecting the "intervenors", and, consequently, student learning. Following a discussion of each of the framework components, examples of using the framework to shape a local quality improvement effort are presented.

The Improvement Framework: An Overview
Figure 1



Defining "Quality" as the Improvement of Student Learning

Critical to the framework is the definition of "quality" as the improvement of student learning. Astin (1982) provides several definitions of "quality", including those based on program or institutional reputation and resources. He urges

adoption of an alternative definition--talent development (1985, p.61):

> In its simplest terms the talent development conception of excellence focuses on changes in the student from the beginning to the end of an educational program. These changes can cover a wide range of cognitive and affective attributes.

Astin advocates a definition which requires information on changes or improvements in student performance over time. The effectiveness of our institutions and programs is to be judged in terms of the difference they make in both the kind and amount of student learning that takes place after initial institutional entry. A strong appeal of the student learning definition is that it focuses attention on the use rather than the acquisition of resources (Astin, 1982) and on the fundamental mission of education: the development of human resources.

The specific definition of "quality" adopted here, then, is: "change of particular kinds" in students between institutional entry and exit, or, student learning over time. Importantly, this definition has both an empirical and normative dimension. Both are critical for an institution to address. The empirical dimension focuses only on change and asks: "Did change occur?"; "How much?" and, "In which direction?" It is essentially a measurement issue. The normative dimension focuses on improvement and asks: "Did the desired change occur?" The

normative, unlike the empirical dimension, requires a focus on values (i.e., What will be the valued student learning?) as well as measurement (i.e., Did the valued learning take place? How much?).

The first steps in an improvement effort, then, are to define the valued student learning and to establish procedures and measures to help assess the kind and amount of learning taking place. Ewell (1984) provides one of the more useful classifications of student outcomes (see Table 1). These outcomes may be defined for a particular course, instructional program or the entire undergraduate or graduate educational experience.

A Classification of Outcomes Dimensions
Table 1

1. Knowledge Outcomes
   a. General Knowledge (Breadth of Knowledge)
   b. Knowledge of Specific Fields (Depth of Knowledge)
2. Skills Outcomes
   a. General Competence (Social Functioning) Skills
   b. Professional/Occupational Skills
3. Attitude/Value Outcomes
   a. Personal Goals and Aspirations
   b. General Attitudes, Values and Satisfactions
   c. Attitudes Toward Self (Development of Identify)
   d. Attitudes Toward Others
4. Relationships with Society and with Particular Constituencies
   a. Relationships with Educational Institutions
   b. Relationships with Employers/Industries
   c. Relationships with Professions
   d. Relationships with Family/Community/Society

Source: Ewell (1984). The Self-Regarding Institution.

The "Intervenors": Factors Affecting Student Learning

A review of school effectiveness research (for example, see Brookover, et.al., 1982; Cuban, 1984; and National Committee for Citizens in Education, 1980), recent higher education reports such as Involvement in Learning (1984) and pedagogical theory (see Gagne, 1977; Chickering and Associates, 1981; and Astin, 1985) suggests six intervening variables, or conditions for learning, which appear related to the kind and amount of student learning that takes place. This list and definitions presented in Table 2 should be considered preliminary and are

The Intervenors
Table 2

Intervenor	Definition
Student Involvement:	the time, energy, investment and/or effort students put into their own learning experience
Learning Expectations:	expected levels of performance on specific kinds of learning outcomes
Assessment and Feedback:	regular and periodic assessment of student learning; monitoring progress; and feedback to both students and instructors
Individualization:	the taking into account of the individual differences of learners when designing and implementing learning programs
Instructional Methods:	the instructional strategies used to facilitate/support/bring about student achievement of the desired learning outcomes
Content:	the "stuff" or subject matter used to facilitate the valued learning; what students spend their time doing

offered as a point of departure in designing an instructional improvement plan. The intervenors may be used as criteria to evaluate current instructional programs as well as the potential value of alternative instructional program improvement strategies. The framework assumes that each intervenor may be shaped or "manipulated" by institutional policies and programs.

For Astin (1985), chief spokesperson for a student involvement theory, involvement means "the amount of physical and psychological energy that the student devotes to the academic experience"(p.134), such as preparing for a course exam or involvement in a more general set of experiences. He asserts that "the effectiveness of any educational policy or practice is directly related to the capacity of that policy or practice to increase student involvement (p.136).

The Involvement in Learning report (National Institute of Education, 1984), in addition to discussing student involvement, identifies two other conditions critical to student learning: 1) the extent to which expectations about what is to be learned and the level of performance to be achieved are made clear and are communicated publically; and 2) the extent to which regular and periodic assessment and feedback takes place. Students, faculty and administrators all should be recipients of such assessment.

Especially interesting is the closeness of match between findings from the school effectiveness research and the Involvement in Learning report. Both define an "excellent" or

quality program (or school) as one where students are learning. Both identify "expectations" and "feedback" as critical factors. Both call for greater attention to how students spend their time. In the K-12 sector this is often called "time on task" or "academic learning time" while in higher education, the current term is "involvement in learning". Another similarity is that neither provides cookbook-like solutions. Rather, each advocates the implementation of strategies that take into account local problems, strengths and resources.

Individualization is another critical intervenor. The assumption made is that we do not all learn equally effectively in the same ways. Chickering(1981), and Cross(1981), among others, are proponents of the importance of taking individual differences into account in the design of instructional programs. Attention is given to issues of curricular content and instructional methods that best meet the needs of an individual student. Advocates of self-paced instruction, contract learning, independent study, a large role for electives and competency-based learning models are associated with this individualized approach. Emerging work in the areas of "learning styles", gender roles and multicultural education also have important implications here.

Instructional methods, another intervenor, could be subsumed under the factors of student involvement, expectations and assessment and feedback; that is, methods would be evaluated in terms of the extent to which they promote student involvement, clearly articulate learning expectations and the extent to

which use is made of assessment and feedback. It is included as the fifth intervenor, however, to underscore the importance of including a review of instructional methods as part of an improvement effort and identifying the extent to which teachers are using methods that appear to hold the most promise for promoting particular kinds of learning (see McKeachie, 1978; and Sherman, 1985).

The sixth intervenor, content, refers to the issues or the subject matter around which learning experiences are organized. What should students be reading? How should they be spending their time? What should they be encouraged to think about and to do? Content has to do with issues of the intrinsic worth of an activity as well as its potency for bringing about the desired learning.

Reviewing Current Instructional Programs

Prior to reviewing alternative strategies which might become part of a comprehensive improvement effort, the intervenors should be used as criteria to review the quality of current instructional programs (see Table 3). Such a review can identify the kinds of changes that appear to be most needed.

It is important to note that this review process focuses directly on the intervenors themselves and not on the measurement of student learning outcomes. While assessment information on learning outcomes would be useful to have, it is not essential to initiating an improvement effort. In fact, direct information about the intervenors is the more important data set in terms of identifying problem areas. Assessment

information, while important, by itself tells little about the steps that should be taken to improve student learning. The intervenors provide such an improvement road map.

Criteria for Use in Reviewing Current Instructional Programs

Table 3

1. Involvement: To what extent are students encouraged to be involved in their own learning experiences? How much time are they involved? How active are they in the learning process? Do current institutional and program policies promote student involvement?

2. Expectations: How clear and known to students are the expected levels of performance? In particular classes? In major programs? For the undergraduate or graduate experience as a whole?

3. Assessment: Is student learning regularly and periodically assessed, student progress monitored and feedback provided to students, faculty and administrators? Does assessement activity fulfill only an accountability role (i.e., are certain standards being met or levels of performance being achieved?) or also an improvement role (i.e., what progress are students making? how much learning has taken place in the lower division experience?)

4. Individualization: To what extent and how are individual differences among students taken into account in courses and programs? Is use made of testing and placement procedures? Are individualized learning opportunities available? How do instructors deal with student diversity of various kinds in their classrooms and programs? How prepared do they feel to deal with such diversity?

5. Instructional Methods: What kinds of instructional strategies and approaches are used by faculty? To what extent are active modes of learning encouraged? How well matched are the methods with the expected learning outcomes and with the content/subject matter? Do the methods reflect current research findings on effectiveness?

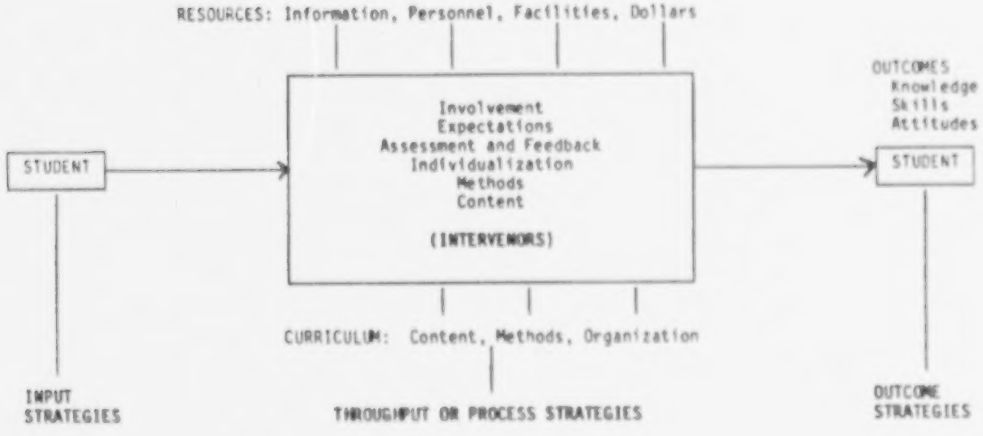
6. Content/Subject Matter: Is the subject matter aligned closely to the expected learning outcomes? Are students spending sufficient time to achieve the desired outcomes? Is the material itself intrinsically of value?

The Improvement Strategies: Policy and Programmatic Levers for Change

Three major improvement strategy types are identified and labeled: Student Input, Throughput or Process (Resources and Curriculum) and Outcomes (see Figure 2). These should be viewed as opportunities for policy or programmatic change with potential for influencing the intervenors, and, consequently, student learning. An effective improvement program would include the use of a combination of specific strategies drawn from each of these three types.

The Improvement Framework Expanded

Figure 2



Examples of each of the three strategy types are shown in Table 4. A local improvement effort will need to develop its own list by asking the question: What kinds of policy or programmatic changes can be made in student input, resources, the curriculum or outcomes which hold the most promise for affecting one or more of the intervenors?

Quality Improvement Strategies: Examples from the Field

Table 4

Strategy-Type	Examples
A. Student Input: Changing Incoming Student Characteristics	1. admissions 2. financial aid 3. collaboration with schools 4. high school graduation requirements 5. marketing 6. better information about the school for prospective students
B. Resources: Changing the Amount and Quality of Information Personnel, Physical and Fiscal Resources	1. self-study/program review 2. outcomes information 3. diagnostic testing/placement 4. advising 5. faculty recruitment/hiring 6. promotion/tenure 7. faculty/staff development 8. instructional evaluation 9. merit pay 10. technology 11. financial aid 12. physical plant 13. library 14. student housing 15. total dollar acquisition
C. Curriculum: Changing the Learning Content and How Learning Experiences are Organized	1. general education core requirements 2. creation of "learning communities" 3. interdisciplinary approaches 4. competency-based approaches 5. experienced-ased approaches 6. new program/course guidelines 7. instructional methods 8. student-teacher ratios 9. calendar and scheduling
D. Outcomes: Changing the Bases on Which Learning is Assessed and Certified	1. achievement testing required to graduate 2. grading practices 3. graduate warranty (cite OSU) 4. licensure requirements 5. certification requiremens 6. policies for admission to particular courses, programs, levels of study

Developing Strategies for Local Use

A local instructional program improvement committee or task force would examine systematically, not mechanistically, the improvement strategies which hold the most promise for affecting the intervenors. No "blueprint" is available for doing this. An improvement plan must be designed for a particular local setting and situation by the leadership most familiar with that setting. The discussion to follow

demonstrates the kind of conceptual and analytical framework a local improvement team would bring to the task of designing a comprehensive instructional program improvement effort.

Input Strategies refer to policies and programs designed to change the characteristics of the entering student population. Prior learning expectations or requirements might be clarified and better communicated to prospective applicants, thus attracting students better qualified to participate successfully in the programs offered. Collaborative efforts among the schools, two- and four-year institutions could include opportunities for students to learn earlier and prior to admission how well prepared they are. Financial aid policies could be examined in terms of their implications for student involvement (e.g. Should greater effort be made to increase the numbers of students participating full-time, thus providing them with greater opportunities for program involvement?)

Many Resource Strategies are available, strategies designed to alter the amount and quality of informational, personnel, physical and fiscal resources available. Only three are discussed briefly here: program review; the faculty; and technology. Program review, a vehicle for increasing the quality and use of information, is a widely used planning and management process in higher education (Barak, 1982; Conrad and Wilson, 1985). A program review effort could be expanded to include information about the intervenors. The process offers an opportunity for clarifying learning expectations, the content and instructional methods to be used and the

appropriateness of each and the extent to which the individual differences of students are taken into account in program and instructional design. Program review can serve as a comprehensive improvement strategy allowing for the examination of all of the intervenors.

Another major Resource Strategy involves examining policies and practices affecting the faculty, their hiring, promotion, tenure, post-tenure review and development. Some of the questions that could be raised include: Is teaching truly valued, as reflected in promotion and tenure policies and actions taken? Is there time and are workloads such that students have access to faculty? Do faculty have strong classroom and program assessment skills? How skilled are faculty with using alternative instructional methods? Two recent, provocative books on faculty that are well worth consulting are The American Academic Profession (Finkelstein, 1984) and Improving Undergraduate Education Through Faculty Development (McKeachie and Eble, 1985).

Increased access to computers is viewed by many as essential to future institutional viability. For some, computers are a new indicator of program quality. The computer, along with other learning technologies such as video and audio, has been promoted as a tool for use in increasing instructional responsiveness to the individual differences of student learners, including differences in ability, learning styles and motivation (Gilbert and Green, 1986; and Lewis, 1985).

Potential Curriculum Strategies are also plentiful, those designed to change the content and organization of learning

experiences. Many institutions have completed or are in the process of examining their general education core or redefining "liberal education". Such an examination provides an opportunity, like program review, for considering implications for all of the intervenors: Which learning outcomes do we wish to promote and how? How will student involvement be promoted? How will we know if students are making progress in the desired directions? and so forth. Excellent resources include: Gamson (1984), with her notion of "learning communities"; Alverno College Faculty (1976); and, Adelman (1984).

Lastly, Outcome Strategies are those designed to change how learning is assessed and certified. The improvement task force could ask: What kinds of feedback do students receive and when on the progress they are making? During the course of each term or only at the end? Should standards beyond the completion of courses be met to advance to upper division standing? Teacher education graduates from Oregon State University are covered by a "graduate warranty", a kind of performance guarantee backed by the promise of assistance to those experiencing difficulties as new classroom teachers. Outcome strategies hold promise for affecting the expectations and assessment and feedback intervenors. One excellent source of information about the use of outcome strategies is the American Association for Higher Education in Washington, D.C. Order the set of papers prepared for the October 1985 National Conference on Assessment in Higher Education held in Columbia, South Carolina. (Also see Ewell, 1985 and Pace, 1979.)

IMPLICATIONS FOR INSTITUTIONAL RESEARCH

The shift in focus to student learning and to local improvement efforts designed to promote student learning has several major implications for institutional research. Six are identified and discussed.

Structural Realignment

To be effectively involved in instructional improvement efforts, institutional researchers must be linked closely with the academic affairs or instructional part of the organization and enjoy credibility with the faculty. They should be included on local instructional improvement teams or task forces. They must have these linkages in order to understand and be responsive to the information needs of their faculty colleagues.

Preparation and Continuing Education Needs of Practitioners

Professionals entering the field need to have greater knowledge of instructional theory and research, curriculum design and evaluation, educational assessment and measurement and, in general, a broader understanding of the current theory and research base that has implications for student learning. The field needs to attract more individuals with backgrounds in disciplines such as anthropology, psychology, sociology, and political science who are also familiar with the literature of higher education.

A New Role and Focus for Policy Analysis

Practitioners need to develop more knowledge of and skill with policy analysis. The focus of such analyses should include the evaluation of alternative policies in terms of the potential they hold for promoting the kinds of student learning valued by the institution. The policy arena needs to be expanded beyond issues of access to include issues of student learning and development.

The Development of New Assessment Tools

A quick review of the intervenors and their use as part of an instructional program review process suggests the need for new instruments or tools of assessment. Several sources previously cited (Harris, 1985; Ewell, 1985) identify a number of such instruments currently available, including an important new instrument developed by C. Robert Pace (1984) for assessing the kind and level of student involvement taking place. More instruments are needed to describe the local situation with respect to other intervenors and valued student learning outcomes.

The Local Institutional Research Agenda

The local institutional research agenda should include: 1) projects related more directly to understanding conditions which appear to promote and improve student learning; 2) projects designed to monitor and analyze overtime the impact of new policy and programmatic efforts to improve student

learning; and 3) collaborative research projects involving discipline-based as well as Education faculty and their students.

New Linkages with Local School District Researchers

For too long the school and postsecondary research communities have been separated, implicitly suggesting that they have nothing to learn or to gain from one another. Any postsecondary type who begins to review the school effectiveness and related literature will quickly come to the opposite conclusion, that much is to be gained from crossing educational boundaries. Institutional researchers in colleges and universities can gain much from initiating new linkages with those doing research in school settings.

CONCLUDING COMMENT

This paper began and ends with a call for a return by institutional research practitioners to an arena referred to here as the "heart of the matter"--student learning. Instructional program improvement efforts need the conceptual, analytical and technical support our profession can provide. The issues are too urgent for us to sit back and wait for the direction and leadership of others. We need to provide our own leadership and become advocates for program improvement efforts that are designed to increase the student learning valued by our institutions.

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